ATTACHMENT D – TECHNICAL REQUIREMENTS

This section defines the technical design and environment for the simulation. It focuses on these components:

- Operating Environment
- Simulation Definition
- Simulation Structure
- Delivery / Support
- Information Technology Enterprise Architecture Requirements
- Resources

I. Operating Environment

The simulation will be run on an ISDH Server. Primary access to the simulation will be through the Indiana Learning Management System (IN LMS). The individual wishing to run the simulation will log on to the IN LMS. They will request the simulation through the LMS. The IN LMS will pass the logon id to the ISDH server when it requests the simulation. The ISDH will be responsible for setting this up. There may be a couple of questions we would ask of the vendor but no work is projected for the vendor. Some key operating considerations are:

- The simulation must be a Web application. It will be browser based and at a minimum it must be compatible with the current versions of Internet Explorer and Netscape Version 8.1.2 (US English). If there is backward compatibility with recent releases, we need to know what they are.
- The simulation must run on a Windows 2003 server. If another server environment is required, we need to know so we can assess the impact.
- The ISDH runs Oracle 9i, 10g and SQL Server 2005 database engines. Our preference is to use this environment. If a different database or version is used, we need to know so we can assess the impact.
- Our Web environment is Microsoft .Net (2003 and 2005). If a different environment is used, we need to know so we can assess the impact.
- The simulation will be part of our IN LMS and it must be SCORM compliant using Version 2004-2nd Edition.

II. Simulation Definition

This section provides a descriptive view of the simulation followed by specific points relating to the simulation.

A. Simulation Overview

The simulation is initiated through the IN LMS. The IN LMS logon is passed to the simulation when the simulation is initiated. The simulation uses the logon to track the last time the player accessed the simulation. If the simulation finds the player, the simulation displays the scenario, last level attained and points earned. The player has the option of continuing from this point or starting a new simulation. When starting a new simulation, the player selects:

- Scenario - Three different scenarios are defined; more could be added later. When selected, the simulation presents a definition of the scenario and background information. There are three scenarios:

    - Scenario I: First Wave of Pandemic Influenza in Indiana
    - Scenario II: Second Wave of Pandemic Influenza in Indiana
    - Scenario III: Standing Up the POD for Pandemic Influenza Vaccine in Indiana
- Role – Specific roles are defined for each scenario. Some roles are common across scenarios, while others are unique to the scenario. The simulation provides a description of each role and its primary function in the selected scenario. Roles may be added or deleted in the future. We will define the roles based upon ICS standards. There will not be more than seven roles for a given scenario.
- Skill set – There are three skill sets in the simulation – novice, intermediate, and advanced. The simulation process is the same for each of the skill sets; the difference is with the difficulty of the situations presented in the simulation.
- Level – Each scenario contains levels that represent milestones completed by the player. The levels for the simulation are unique for each scenario and may be changed in the future. Each scenario has specific levels:
    - Scenario I levels:
        - Level I-A - Preliminary evolution of the disease
        - Level I-B - Definitive Information from the epidemiologists using global data
        - Level I-C - Confirmation of the situation in Indiana
        - Level I-D - Situation escalates
        - Level I-E - Stabilization (End of Wave 1)
    - Scenario II levels:
        - Level II-A -Post wave 1 Conditions/ Indication that the second wave has started
        - Level II-B - ISDH informed by Centers for Disease Control (CDC) of vaccine availability
        - Level II-C - Planning for Point of Dispensing (POD) Operations/Support/Staff Turnover
        - Level II-D - Decision process on standing up the POD/Mass Prophylaxis Clinic
    - Scenario III levels:
        - Level III-A - POD Planning
        - Level III-B - POD/Mass Prophylaxis Clinic Set Up
        - Level III-C - POD Operations/Dispensing
        - Level III-D - Shut Down/Follow-Up/After Action Report (AAR)

The simulation starts by displaying background information related to the selected scenario and level. Based upon the role and skill set selected, the player will randomly be faced with an initial situation. As each situation presents itself, the following occurs:

- Introductory display – There may be introductory information presented to the player. This provides background information necessary for the situation. If there is an introductory display, it is presented to the novice user.
- Timer – if this is a timed situation, the timer displays once the question and answers display.
- Questions – Following the introductory display, a question with possible choices displays.

The player selects an answer. An incorrect choice will cause additional corrective information to be displayed and the situation repeats. Based upon a correct selection the following happens:

- The simulation displays additional information to reinforce the purpose of the question.
- With each correct answer, the score is tallied and the simulation will present the next situation. Each situation has multiple possible selections for the next situation and the simulation will randomly select the next situation. The point system is:
    - 100 points for answering the first time
    - 50 points for answering the second time
    - 25 points for finally getting the correct answer
    - In addition to correct answers, some situations may contain a timer to stress the importance of responding quickly to certain situations. For these questions the player will receive a 50 point bonus if the correct response is provided within the allowed time limit.
- For situations with a timer, the timer countdown displays on the screen.
- If this is not the last question in a level, the simulation randomly selects one of the next situations and the situation repeats.
- If this is the last question in a level, the player is congratulated for finishing the level and a recap of the lessons learned in this level displays. The player record is updated to reflect completing the level and is given the option of continuing to the next level. After reaching the final level, the player's cumulative score displays.

B. Specific Requirements

The following are additional requirements related to the simulation:

1) The simulation must be user friendly and have minimum hardware capability requirements.
2) The simulation should run in real time with the ability to pause the simulation except during a "timed" situation. Pausing the simulation will stop play until the player resumes play. If the player terminates a game, play can only resume at the last level completed.
3) The simulation will initially be for a single player. In the future, a multiple player simulation may be desired. At this time, the simulation should be structured for single individuals in a virtual, self-paced training environment that allows the development and assessment of individual skills. The exercise will allow repetition for skill improvement and involves the learner in active decision-making.
4) The contractor will provide step-by-step help directions on using the simulation and will also provide a downloadable .PDF document containing instructions on running the simulation.
5) The exercise must be designed for the novice, intermediate, and advanced user. The contractor will make every effort to ensure seamless, intuitive navigation through the simulation. Particular attention should be given to the simulation start-up menus as these will introduce the entire simulation.
6) The simulation must be randomized or different each time played in order to present a novel experience each time the user participates. This is accomplished by randomly selecting the next situation once a correct response is given.

7) Scenario play will be based on a critical path timeline model, in which the course of an event unfolds in time, and the responses and decisions of those taking part in the exercise affects the progress and outcome of the exercise. Actions and decisions of the player will mirror the same effects and consequences as in the real world.
8) Data should be collected throughout the course of the exercise. A common set of tasks, conditions, and standards that are based upon NIMS (National Incident Management System), ICS (Integrated Command Structure), and the National Response Plan (NRP) will be used to structure, assess, and provide feedback about player performance during the simulation. Where possible, the contractor should allow the participant to repeat segments of the simulation by repeating a particular level. At a minimum, evaluation of the player should include an after-action report that shows the number of correct and incorrect responses to situations presented and a score based upon the speed and accuracy of responses. Player data will be retained and printable by the system for comparison of knowledge and skill gain over time. A maximum of 25 entries per player will be stored by the system. Entries over six months will be purged.
9) The simulation must be able to expand and adapt in future authoring systems. The system platform must allow for easy modifications to roles, levels and situations.
10) The simulation must allow the presentation of generic and, where possible, geographically relevant Indiana maps and related data.
11) The vendor must provide the ISDH with maintenance functions that allow the ISDH to add, change, or delete levels, roles, and situations.
12) The name should display for any acronym used within the simulation utilizing a mouse rollover.

III. Simulation Structure

The vendor can define whatever structure they wish to support the simulation requirements. As part of the vendor proposal we require an overview of how the simulation will be structured. Based upon discussions that we have already had, we are providing the following only as a **guide**. *It is not intended to be complete or even a requirement; it is included only to help clarify the requirements and to provide an example of what we are requesting in the proposal.*

A. Role Definitions

A possible structure for defining a role is:

- Role ID to uniquely identify the role
- Role display type (i.e. video clip, .jpg, etc.)
- Role display
- Pointer to the first level for the role

B. Level Definitions

A possible structure for defining a level is:

- Level ID to uniquely identify the level
- Introductory display type (i.e. video clip, .jpg, etc.)
- Introductory display at the start of the level
- List of initial situations for the simulation to randomly select the start of the exercise. The initial list will vary by role and skill set.

- Concluding display type (i.e. video clip, .jpg, etc.)
- Concluding display at the end of the level
- Pointer to the next level or indicator if this is the last level.

Levels represent milestones in the simulation. Once the player completes a level, the simulation updates the player record with the level completed and points accumulated.

C. Situation Definitions

The purpose of the simulation is to present different situations to the player and receive a response. A possible structure for defining a situation is:

- Situation ID to uniquely identify the situation
- Skill set – defines if this situation is for a beginner, intermediate or advanced player.
- Introduction to the situation display type (i.e. video clip, .jpg, etc.)
- Introduction to the situation display
- Timer
- Situation description and list of questions
- Situation selections
    - Response to the player on an incorrect answer
    - For a correct response:
        - Response on a correct answer (highlights purpose of question)
        - Flag to denote the end of the level
        - If not the end of a level, a list of possible situations from which to randomly select the next situation

The situations represent the various questions and responses for each player. They are the "heart" of the simulation and reflect the knowledge the player is to learn. Since each situation randomly selects the next question, there is variety in how the simulation unfolds. **The Indiana State Department of Health will provide all content and subject matter expertise required for the situations.**

IV. Delivery / Support

Planning meetings between the Contractor and ISDH to occur monthly at a minimum with the first meeting to occur within two weeks of contract execution. The first meeting will be held at ISDH with the remainder of the meetings likely to be conducted via webinar or conference call.

Upon awarding the contract, the ISDH expects a detailed project plan containing the following milestones which will be signed off on by the ISDH:

A. Review of the project plan – within 14 days of awarding the contract
B. Delivery of design specifications - within 45 days of approving the project plan; this will include a definition of the technical operating environment
C. Delivery of a working prototype – within 120 days of approving design specification
D. Delivery of final version – within 60 days of reviewing the prototype; this will include technical documentation and user documentation

Each milestone will be reviewed by the ISDH technical staff and the ISDH Pandemic Influenza Simulation Task Force.

- The ISDH will authorize payment as follows:
    - 10% with approval of the design specifications.
    - 20% with delivery of a working prototype.
    - 30% with delivery of the final version.
    - 40% with approval of the final version; approval will be granted only after all testing errors are corrected.

- The vendor will be responsible for implementation at the ISDH site. The implementation will be a combined effort of the vendor and ISDH staff. The ISDH will provide servers and technical expertise. **The simulation will be launched onto the IN LMS no later than August 30, 2007.**

- The ISDH will expect a written test plan focusing on:
    - Unit testing by the vendor
    - Integrated testing by ISDH
    - Performance testing by the ISDH

  The ISDH will assist in developing test cases.

- The ISDH will require a one year full warranty period. This will include on-site support if needed. The ISDH will require a detailed support plan as part of the proposal.

V. Information Technology Enterprise Architecture Requirements

The Vendor shall ensure compliance with Indiana Office of Technology (IOT) standards, policies and guidelines, which are online at http://iot.in.gov/architecture/. The Vendor specifically agrees that all hardware, software and services provided to or purchased by the State shall be compatible with the principles and goals contained in the electronic and information technology accessibility standards adopted under Section 508 of the Federal Rehabilitation Act of 1973 (29 U.S.C. 794d) and IC 4-13.1-3. **For guidance used to affirm compliance with Section 508, please see Attachment E of this RFP.** The Vendor further agrees that all application development will be compliant with the Web Development Guidelines at http://www.in.gov/iot/architecture/guidelines/web_development.html. Failure to ensure compliance with these standards, policies and guidelines may be considered non-responsive and the proposal may not be evaluated.

VI. Resources

- Information related to the Indiana Pandemic Influenza Plan may be viewed on the ISDH website located at http://www.in.gov/isdh.

- Information related to the State of Indiana's pandemic influenza planning may be viewed at http://www.fluinfo.in.gov.

- General information on pandemic influenza may be found at http://www.pandemicflu.gov/general/.

- Review of Models, Simulations, and Games for Domestic Preparedness Training and Exercising Vol. III-a, Prepared for: Office for Domestic Preparedness, DHS, 2004, ThoughtLink Inc., Vienna, VA located at http://www.ojp.usdoj.gov/odp/docs/Review_of_MSG_SlimVersion.pdf